

Accelerator R&D

Fermilab Long Range Planning

INTRODUCTION

Accelerator R&D is one of the foundations upon which experimental particle physics is built.

The accelerator R&D that is supported over the next 10-20 years will determine whether we have any viable options for continuing accelerator-based particle physics beyond this timescale.

2002 HEPAP Report

*“We give such **high priority** to accelerator R&D because it is **absolutely critical** to the future of our field. ... As particle physics becomes increasingly international, it is **imperative that the United States participates broadly in the global R&D program.**”*

Accelerator R&D Long-Range Planning Group

Steve Geer

Philippe Piot

Jerry Blazey

Chris Hill

Mike Syphers

Don Edwards

Sergei Nagaitsev

Chris White

Kwang-Je Kim

Pierre Bauer

Bob Kephart

Panagiotis Spentzouris

Court Bohn

Steve Holmes

Alvin Tollestrup

Helen Edwards

Jim Strait

Scope

The Accelerator R&D Long-Range Planning Sub-Committee was asked to consider R&D aimed at the Long-Term, not covered by the Linear Collider, LHC, or Proton Driver groups.

In defining which present accelerator R&D activities fall within the scope of the sub-committees considerations we chose to err on the side of being inclusive, rather than exclusive, and have included:

1. SC Magnet R&D ^{a)}
2. SCRF ^{b)} & Advanced Accelerator R&D at A0
3. Muon Cooling and Neutrino Factory R&D
4. Accelerator Theory and Simulations

a) LHC related SC magnet R&D not covered by LHC LRP group.

b) SCRF R&D is clearly LC-related, but is also of interest beyond this.

Talks to the Sub-Committee

| | | |
|----------|--|----------------|
| 29 May | Ongoing R&D Program | S. Holmes |
| | Student Program | M. Syphers |
| 19 June | Magnet R&D at FNAL | A. Zlobin |
| 27 June | Joint meeting with Proton Driver Group | |
| 3 July | Joint meeting with Proton Driver Group | |
| 10 July | Accelerator R&D at ANL | K-J. Kim |
| 11 July | RF R&D in TD - 1 | V. Yarba |
| 17 July | Muons Inc | R. Johnson |
| 18 July | RF R&D in TD - 2 | V. Yarba |
| 7 Aug. | A0 R&D | H. Edwards |
| 8 Aug. | High Power Target R&D | K. McDonald |
| | | J. Hylen |
| 28 Aug. | SCRF R&D | H. Padamsee |
| 3 Sept. | “Young Persons Session” ... arranged by P. Bauer & P. Piot | |
| 11 Sept. | Accelerator Simulation | P. Spentzouris |
| 17 Sept. | Local University Perspectives | C. White |
| | | C. Bohn |
| 21 Nov. | Accelerator R&D at BNL | I. Ben Zvi |

Agenda

- | | |
|--|------------|
| 1. Introduction | S. Geer |
| 2. SCRF & Advanced Accelerator R&D at A0 | H. Edwards |
| 3. MUCOOL & Neutrino Factory R&D | A. Bross |
| 4. SC Magnet R&D | J. Strait |
| 5. Theory, Simulation, & the Student Program | M. Syphers |
| 6. University Perspective | C. White |
| 7. Draft Recommendations | S. Geer |
| 8. Discussion | |